

Secondary IOL Implantation

In this issue of PJO there is excellent coverage of cataract surgery related options like secondary IOL implantation and particularly scleral fixation of IOL. Cataract treatment now is synonymous with cataract extraction with IOL implantation, be it primary or secondary.

The choicest procedure is IOL in the bag. In certain situations in the bag insertion is not possible and one has to resort to anterior chamber (AC) insertion or scleral fixation of IOL.

We all know the complications of AC IOL's especially UGH syndrome etc. and also we are aware of demanding techniques and complications of scleral IOL fixations in the past.

We have come a long way with safer AC IOL'S and evolution of easier and safer scleral fixation techniques.

In certain situations where there is no contraindication to AC or scleral fixation IOL one has to decide which one to choose for our patient.

I have sought opinion of some learned colleagues in this regard and I am quoting the views of some of them for our guidance in decision making.

I myself always preferred AC IOL insertion in such a situation.

Dr. Aqil Qazi, Senior Consultant at LRBT Lahore with enormous experience in cataract surgery has following views.

When a patient presents to a doctor for a secondary IOL without posterior capsule remnant puts a doctor into dilemma.

Anterior Chamber IOL

Doctor has a much simpler, quicker and shorter almost achievable option, that is ease of placing an anterior chamber IOL. After the procedure the discomfort and photo sensitivity comes immediately. Macular edema incidence becomes much higher and diabetic patient develops retinopathy out of proportion to other eye.

This is due to low grade uveitis. Due to turbulence the eye continuously sheds endothelial cells. When the endothelial count falls below the critical level bullous keratopathy sends patient to blind alley.

Scleral Fixated IOL

On the other hand the option of placing lens behind iris contrary to anterior chamber IOL, requires skilled surgeon with expertise, takes longer time and requires properly anesthetized eye. Even with all expertise, hemorrhage, the IOL power calculation error, IOL tilting and low grade uveitis may be expected. But the threat of the corneal damage due to turbulence endotheliopathy is avoided. The task becomes easier with availability of eyelets on haptics of intra ocular lens, prolene suture with straight long needles and good operation environment i.e. assistant, instruments and microscope.

Dr. Tariq Saeed, an Eminent U.S trained Vitreo-retinal surgeon with background of pediatric care experience has following recommendations.

I implanted my first intraocular lens implant in USA in 1980. It was an anterior chamber implant. All my colleagues did the same procedure till 1985. Corneal decomposition and "UGH" syndrome (Uveitis, Glaucoma, Hyphema) became known.

Chronic CME was a long term problem. In 1985 I explanted my first anterior chamber implant in order to get rid of these ongoing problems.

We switched over to posterior chamber implants (initially over the shelf, and later on in the bag) in 1983.

All those patients who were rendered aphakic prior to 1979, were implanted with posterior chamber (PC) lenses, placed over the dissected shelf, and combined with anterior vitrectomy only if a rent existed in PC. Quite a large number of patients had no posterior capsul.

This is where the need for scleral fixation arose. I implanted my first sclerally fixated IOL by using a 27 gauge needle, in 1986.

The technique needs good anterior vitrectomy, a prolene suture (preferably 9-0) with double needle, and a single piece PMMA (or equivalent) large optic IOL, with Haptic-to Haptic Diameter of 13.00mm or larger. Unless the cornea has guttata caused by previous surgical damage, proper visco elastic coating of endothelium will prevent corneal endothelial damage secondary to vitrectomy-fluid & other maneuvers. Mild (minimal) hemorrhage form the wound, that mixes up with vitreous, clears up in few weeks. Intra ocular pressure increases to low 20's in about 1/3 of patients. It is caused by erythroclasts, macrophages and in some patients by steroid drops that we use along with anisodrops (for CME). IOP is reversible in almost all cases. Retinal detachment is avoided by keeping cutter speed high, (750 cuts / minute or more) suction at the lowest level, and choosing a reliably good cutter. We examine retina intra operatively (after vitrectomy) to assure structural integrity and treat with Cryo or Endolaser if needed.

Dr P. S. Maher, Professor of Ophthalmology from Aga Khan University and Isra Postgraduate Institute of Ophthalmology has given his valuable opinion.

Intraocular lens implants have proven to be one of the most significant advancements in ophthalmology over past few decades. Over the years, design of lenses has evolved greatly with also changes in the surgical technique. Posterior chamber lenses are the preferred way of implanting lenses as they are associated with less intraocular inflammation, hyphema and glaucoma. They also lead to less endothelial cell loss after cataract surgery. The posterior chamber lens is closer to the nodal point and center of rotation of the eye leading to better optical properties. As the lens is posterior to the iris, the potential of pupillary block is decreased. Because the lens is away from the corneal endothelium, there is less chance of corneal decompensation. More over the angle structures remain undisturbed, minimizing the peripheral anterior synechial formation. It is clear that the best lens implant during uncomplicated phacoemulsification or extra capsular cataract extraction is a PC- IOL. However the problem arises when the capsular support is lost. Alternate modalities include implanting an anterior chamber IOL (AC-IOL), the posterior chamber IOL (PC-IOL) sutured to the sclera or a PC-IOL suture to the iris.

AC-IOLs are used when there is an eventful cataract surgery resulting in insufficient capsular

support or they are also implanted secondarily in the aphakic patients. These lenses are easy to implant. It is advisable to perform an anterior vitrectomy in the case of vitreous presenting after the capsular rupture. This will clear the vitreous strands presenting in the wound and allow pupil to constrict easily with the help of intracameral acetylcholine. Most of AC-IOLs, available in the market have four fixation points to be supported by the angle structures. A peripheral iridectomy is helpful to prevent postoperative pupillary block. Inserting of IOL can be helped with the use of silicone glide. The common complications associated with the use of these lenses are pupillary block glaucoma, corneal decompensation due to endothelial cell loss resulting in pseudophakic bullous keratopathy, uveitis - glaucoma - hyphema (UGH) syndrome and cystoid macular edema.

Scleral - sutured PC-IOLs were first described by Spigelman and coworkers. These lenses are shown to be preferable to the AC-IOLs, because of less endothelial cell loss following penetrating kerato-plasty and cataract surgery. The possibility of late polypropylene suture break has been a concern with scleral sutured lenses resulting in lens dislocation. To minimize the incidence of dislocation, it is recommended to place the IOL haptics in the ciliary body/ciliary sulcus rather than posterior to the ciliary sulcus to promote scarring that can help fixate the IOL. To provide a greater margin of safety when the haptics do not scar, it is advised to use 9 - 0 polypropylene suture available on CIF -4 Ethicon needle, because of its larger cross -sectional diameter and 60% greater tensile strength than 10-0 polypropylene. Other possible complications of scleral sutured lenses are vitreous hemorrhage and cystoid macular edema. To avoid macular edema it is recommended to commence these patients routinely on non-steroidal anti-inflammatory drops along with steroids and antibiotics in immediate postoperative period.

Sinsky style angulated PC-IOLs with four centering holes in a 6mm diameter optic are described by many workers in association with penetrating keratoplasty. These lenses are sutured to the iris with prolene 10-0 double armed sutures, about 2mm peripheral to pupillary border to permit adequate mydriasis and to prevent irritation and chafing of the pupil. This technique is recently described in detail. PC lenses sutured with iris have certain drawbacks. Pupillary dilatation can be a problem as pupil diameter does not move beyond 1-2 mm, making it difficult for proper fundus examination. Persistent

hyphema is another complication witnessed in these patients.

The intraocular lenses have considerable optical and practical advantages over glasses or contact lens aphakic correction in the elderly population. The posterior chamber scleral sutured IOLs, although technically difficult, are less eventful than the iris sutured or AC-IOLs in the long term.

While Dr. Ali Haider, a budding vitreo retinal surgeon categorically recommended the preference of inserting A.C IOL. Prof. Dr. Syed Imtiaz Ali, Head of Eye Department RMC & Allied Hospitals Rawalpindi had communicated that following are my views about a scleral sutured IOL as compared to AC IOL. "I think that scleral sutured IOL after the loss of posterior

capsule is always preferable because the AC IOL is ultimately going to produce corneal problems. It is not always easy to place an AC IOL because of papillary abnormalities after the loss of vitreous. Now that we have PC IOLs available which can be fixed to sclera without sutures, I think there is no place for AC IOL in future.

I would value the opinion if all the learned and experienced ophthalmic surgeons in this regard in the letters to the Editor column for the guidance of our upcoming colleagues.

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